AMERICAN RAILROAD JOURNAL,

AND

IRON MANUFACTURER'S AND MINING GAZETTE.

ESTABLISHED 1831.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 48 S. THIRD ST., PHILADELPHIA.

Saturday, October 14, 1848.

☞ REMOVAL.

The Office of this Journal is removed from the *Franklin House*, to No. 48 SOUTH THIRD STREET, *third door north* of the *Girard Bank*.

⁂ A *special request* is hereby made, to those to whom Circulars have been recently addressed, that they will respond promptly to them, as an important question—to *us* at least—is to be decided in accordance with the response given to the request made in those circulars.

JAMES LAURIE, *Civil Engineer.*
No. 23 RAILROAD EXCHANGE, BOSTON, MASS.

Railroad Routes Explored and Surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

Norwich Car Manufactory.

We availed ourself, a few days since, when spending a few hours in Norwich, of the opportunity to ramble through the different shops of this establishment, *in cog*.

The position of the workshops, is along side of the Norwich and Worcester railroad, with a track into the main shop. The different shops are conveniently arranged, and well supplied with labor-saving machinery—with which, and good mechanics, and good management, the company ought to, and we feel assured will, as we saw good evidence, furnish good and durable cars, at fair prices; and we ask for them, of the numerous railroad companies, a fair share of business.

[From the Philadelphia "Commercial List."]

Pennsylvania Coal Trade for 1848.

From the Lehigh Mines.

The amount of coal shipped from the Lehigh mines during the week ending the 30th ult., and since the opening of the navigation, has been as follows:

	This week. tons.	Total this year—tons.
By Lehigh company, Oct. 3.	7,203 17.	186,566 19
By Room Run ....."	4,322 02..	95,061 12
By Hazleton.....	2,354 00..	70,812 00
By Beaver Meadow.....	2,899 16..	64,638 05
By Buck Mountain.....	1,870 08..	55,685 14
By Spring Mountain.....	1,299 15..	51,625 19
By Cranberry Mines.....	301 00..	10,850 00
White Haven.....	251 08..	8,366 19
Diamond Co.....	566 15..	3,469 18
Total.....	21,069 01.	546,076 01

From the Schuylkill Mines.

The amount of coal forwarded by Reading railroad during the week ending the 5th inst., and since the 1st of January, has been as follows—

	Tons
From Schuylkill Haven.....	10,386 05
" Pottsville.....	5,119 12
" Port Carbon.....	6,106 13
" Port Clinton.....	2,070 14
Total this week.....	24,562 17
Total this year.....	971,340 10

The amount of coal brought to market by the Schuylkill canal during the week ending the 5th inst., and since the opening of the canal, has been as follows:—

	Tons.
From Pottsville and Port Carbon.....	7,829 19
" Schuylkill Haven.....	4,875 10
" Port Clinton.....	733 05
Total this week.....	13,438 14
Total this year.....	337,071 14

Recapitulation.—Total Shipments this Season.

By Lehigh companies.....	546,066 06
By Reading railroad.....	971,340 10
By Schuylkill canal.....	337,071 14
Total.....	1,854,488 10

Railroads Beneficial to the Health of Cities.

It is the opinion of some physicians that the railroads have been highly beneficial to the public health in Boston, in consequence of the facilities they afford for a residence and excursions in the country. —We have not a doubt of the correctness of these views. They not only enable people, who are engaged in business in the city, to live in the country, but they furnish those who reside in cities with opportunities to take excursions and to have *better food*.

☞ It is said, and we can readily believe it, that the making of the Central railroad of Georgia, extending from Savannah to Macon, a distance of 190 miles, has doubled the value of the lands within 10 miles of the road throughout its whole extent.

Delaware and Hudson Canal and Railroad Company.

The New York Globe says that "this establishment employs over 3,000 men, and is one of the most successful companies in the United States.—The system and economy which is practiced by the company is above all praise. The men are liberally and most punctually paid. The railroad and the canal are in the best order; and the officers and men well instructed, industrious and peaceable, and what is important, contented. The mines extend a mile and a half in the mountains; the quantity of coal is inexhaustible, and the demand as yet greater than the supply. The amount delivered daily at Honesdale is from 2000 to 2100 tons, and it is expected next year to increase the amount 25 per cent."

There are those who recollect when this company was in "a tight place," but by good management they are now at the head of the list.

Camden and Amboy Railroad Company.

Its Privileges and its Abuses.

This subject has lost none of its claims upon our attention since the publication of the Address of the managers, which will be found entire in the Journal of August 5th, page 500, but has rather assumed a more interesting position since the recent publication of a very able REVIEW of that Address by "*A Citizen of Burlington.*"

The writer of that review has assumed a position which will arrest the attention, not only of the company, but also of the *people*, and the *legislature*, of New Jersey. His charges must now be met and refuted, or the people of the whole country will believe they are true. Neither the assumption of a dignified silence, nor the charge of improper influences upon the *few* individuals and editors who have spoken and written freely of their gross abuses, will now answer their purpose; nor will the running of *another six o'clock morning* train—even at *three dollars*, by the way of New Brunswick—which few people will ever take from choice—and those who arrive by the eastern and northern boats cannot if they would—save them from a weight of odium

which they will find it difficult to resist; and absence from our post alone has prevented that notice of the "Review," which its searching and fearless tone, and confident assertion, seem to demand from the press in general, but especially from the Railroad Journal.

In the first letter of this Review, the writer says: "This Address is like a performance of Hamlet, with the part of Hamlet omitted, by particular desire." "It is a defence of the railroad company, while the railroad is almost entirely kept out of view." He then gives what, in his opinion, under the circumstances, would have been a more suitable address to the people of New Jersey, but as it is rather *ironical* than argumentative, we pass over it to the more serious portions of the letter, which is in the following language, viz:

"The life of the company has been one of stock-gambling and fraud. Its 'sacrifices' have been of *conscience*. Its 'struggles' have been for power. Its 'patriotism' has smelt of the breeches pocket." He then proceeds to say that—

"Deeply as you may have been affected by the narration of sacrifices that have had no existence, you can scarcely have been less startled by the bold assertion of facts equally non-existent, of which I will select a few for comment.

"It is asserted that passengers go from Bordentown to Philadelphia in two hours, when the unhappy travellers by the company's boats know that the time is two hours and a half to three hours and a quarter, making an average of nearly three hours. It is asserted that to go from Newburgh to N. York, twice the distance, requires four hours, when it is well known that the average time is but three and a half, being scarcely more than the average here required for thirty miles, although the Newburgh boat makes numerous stoppages, some of which involves a heavy increase of distance, and loss of time.

"It is asserted that the farmer pays no more for his wheat, when every farmer and storekeeper knows that he had to pay double price within the last twelve months, and when the canal tariff for April last gave *four* cents for the toll on wheat where last year it was but *one*, and that tariff would be now in existance had not its infamy been exposed.

"It is asserted that the paper maker pays no more for his paper, when I myself heard the conductor tell the paper maker that the toll had been raised, and the latter assures me that he has paid the increased price.

"It is stated that 'for the accommodation of the peach trade special trains are run from the different stations on the road from Camden to Amboy,' when every peach grower knows that no such train has ever run, except from the peach orchards owned by the managers themselves. *Additional* trains have run when the business required them, but they have run at the same hours with the other market train, and yet these are called 'special' trains!

"It is asserted that 'the morning dew' would prevent the picking of peaches in season for the morning line, but it is not explained why the morning dew does not affect managers' peaches that go by that line.

"It is asserted that arrangements having been made with a person to send some peaches by the quick passenger line, 'others applied, and were accommodated,' but it is not stated that he was told that the passenger trains '*carried no freight*'—that the permission was granted by personal solicitation—that he was limited to twelve baskets as a particular favor to himself, '*not to be made general*,' while *whole car-loads* went by the same train from the orchards of these managers.

"It is asserted that a second line has sometimes been run on the route from Camden to Amboy, leaving either city at the most convenient hour in the middle of the day, when it is well known that no second line has ever been run on that route from the hour that these managers acquired the power to compel passengers to pay four dollars, and equally well known that it would not now run but for the application to congress to open a new post route through the State.

"Having by aid of careful examination detected a single assertion that is true, I feel bound to notice it. It is in the following words:

"'That the charges for freight are not unreasonable, is proved by the fact that fruits, vegetables and meats, in large quantities are constantly transported from Philadelphia to New York, pay the freight, and afford a profit to the dealers.'

"Such is the fact. The Jerseyman is not permitted to go to his great market, which is New York, and he is compelled to go to Philadelphia, a smaller market, already choked with the products of Delaware and Maryland. He is compelled to sell at what he can get, and his produce is purchased by dealers who are enriched at his cost. He is thus ground between the company on one hand, and the dealer on the other, as between the upper and the nether millstone, and he continues poor when he would grow rich if he could go himself to his great market.

"For what is not asserted or denied in this 'Address,' there is much reason to be thankful. It is not asserted that the roads have double tracks, nor is it denied that the passengers are detained by hundreds on the greatest route of the Union, while trains go through the movements of a *quadrille* in endeavoring to pass each other. It is not asserted that the roads are in even decent condition, nor is it denied that bridges are dilapidated and dangerous. It is not asserted that passengers do not wait by hundreds, for half an hour, for want of an additional ferry boat, nor is it denied that sheep and hogs, and jackasses, and men, and women, dispute for standing room on board a miserable one that is frequently in use. For all these omissions, I am thankful, for it relieves me from the necessity for proving that such things are. Had they made these assertions or denials, I should not have been surprised, as the boldness of assertion throughout the 'Address,' is proof conclusive that they stick at nothing.

"So bold and unflinching are they, that I am somewhat surprised not to find it asserted that they were now complying with the demands of the State for a train from Camden through Trenton to New Brunswick. Had they done so, it would not have been a grosser departure from truth than is contained in each and every one of the previous assertions.—They have not complied with that requisition, and every Jerseyman is still taxed heavily in money and in time when he desires to visit the capital of his own State.

"The comparative statements in regard to charges for passage and freight are fraudulent and deceptive, but, as I propose to show that their accounts are no better, and as I am not disposed to allow my attention, or that of my fellow citizens, to be withdrawn from the examination of these accounts, I do not deem their tables worthy of the slightest notice.—They will, I doubt not, be reviewed by abler hands than mine. For the present, I shall confine myself to the examination of their accounts with the State, and with their stockholders, pledging myself, in the outset, to prove, by evidence of the HIGHEST authenticity, the following facts:

"1st. That the number of passengers has been far greater than has been reported for the payment of transit duty.

"2d. That the quantity of freight carried on the railroad has been far greater than the amount reported for transit duty.

"3d. That the quantity of freight carried on the canal has been far larger than has been reported for transit duty.

"4th. That the returns made to the treasurer's office have been false and fraudulent.

"5th. That the company or its managers are largely indebted to the State on that account.

"6th. That the quantity of passengers has greatly exceeded the number reported to the stockholders.

"7th. That the quantity of freight passing on the road has greatly exceeded that reported to the stockholders.

"8th. That the quantity of freight passing on the canal has so greatly exceeded that reported to the stockholders that a large portion of it has paid them neither freight, no toll nor transit duty.

"9th. That a large portion of the earnings of the machinery of the company has never reached the company's treasury.

"10th. That large sums which have reached that treasury have subsequently been abstracted therefrom.

"11th. That the accounts rendered to the stockholders have throughout been falsified to cover those abstractions.

"12th. That the statements furnished to the State directors were fabricated for that purpose, and cannot represent any state of things standing, or that should stand upon the company's books."

"Here"—as is justly said by that able and fearless paper, the *New York Dry Goods Reporter*, whose remarks we adopt and fully endorse—"is an array of charges, which, if true, should sink any corporation so low that 'the hand of resurrection shall never reach it,' as Mr. Hannegan once said in reference to the president. The accuser is well known to be a highly respectable and responsible man, and he pledges himself to the public to support every assertion by such evidence as would be held to be sufficient by any grand jury in Christendom.

"In the progress of his Review the writer presents from the various reports of the company and other sources the facts and figures to sustain the dark series of specifications quoted above, and we are free to confess that unfavorable as has been our opinion heretofore of the New Jersey monopoly, we were hardly prepared to believe that anything quite so gross and glaring existed as the Reviewer has exposed.

"What will strike every mind with peculiar force, is the frequency with which the company is made to convict itself from its own records at different times. It seems that in 1842, a period of commercial distress, when the stock of the company had fallen to 64, the directors made a report, with the view of preventing a depreciation of their stock.—The report covers the years 1840 and 1841. The following year another report was made. January, 1844, produced another. Last January they published an eight-years report, and it is between these reports that the discrepancy appears. Thus for example:

"The number of through passengers carried in 1840 and 1841, according to the two-years report, was 325,500. In the eight-years report the number is *raized* to 306,989½—thus dropping out nearly 19,000 passengers in two years.

"In 1843-4, according to the reports of those years, the number of passengers was 363,916½. In the eight-years report the number is 57,000 less, or 306,598 1-12—and so of other years we find like discrepancies. One set of reports, of which a small number only were made, being designed to raise the stock, the eight-years report being for the State, and the transit duties being paid according to the lower estimate.

"The amount of ten cents a passenger due the State on the passengers dropped out of the 8-years report would be (with interest added) $86,112, and even this the Reviewer believes is far below the truth. A similar glaring discrepancy between the little reports, as the Reviewer calls them, and the eight-years report, exists as to merchandise transportation.

"In 1841, according to the little report, the through transportation was 14,226 tons. But in the eight-years report it was only 13,200. Here are 1026 tons cut out, which must have paid at least $12,000.

"In the little report of 1844, the through merchandise of 1843 was 25,508 tons. In the report of 1848 it is cut down to 19,511, or 5987 tons less, the freight on which must have been at least $71,000.

"These few instances are taken at random from the review, which the writer tenders to the Attorney General of New Jersey and demands an investigation."

"We do not, says the Reporter, undertake to de-

cide upon the justice or injustice of the accusations brought by the Reviewer, but this we may safely and confidently say, that no corporation having the least regard for its reputation can suffer such a fearful array of charges, involving, as they do the integrity of their managers for years, to be made without demanding an investigation. The Review charges perjury and fraud of the grossest kind. If false the author should be brought to justice. If true, the company should be exposed to the scorn and contempt of the public, and stripped of their corporate privileges."

Investigation of his charges appears to be coveted by the writer of the pamphlet, and the Review, as he says, in his last letter, page 80—

"If, however, they should really think that they have cause to complain of what I have said, it will afford me pleasure to meet them before three honest intelligent independent men, with their books and papers; and if I do not then prove all that I have asserted, I will consent to be branded as a libeller, and will sumbit to any penalty that may be awarded, confessing judgment on the instant. All this can be done in a single week from the day of the publication of these letters, and thus reparation will follow closely on the heels of wrong."

And he reiterates the challenge, in another letter, dated October 2d, and published in the Burlington Gazette of the 6th inst., and it cannot well be refused—therefore we may look for a thorough investigation, by able and disinterested men, chosen, *not* by the company alone, but as such a commission should be chosen, by the accused and the accuser, and the *umpire* by those selected by the parties, thus preventing the possibility of its assuming the character of a white-washing committee.

That our readers may understand the character, and extent, of the alleged mismanagement of this company, we shall re-publish largely from this Review, and, of course, give entire any report that may be made by a properly constituted commission, or committee of investigation.

We shall also endeavor to show to the company, and to the people of New Jersey, that their *interest* will be largely promoted by the adoption of rates, both of *fare* and *freight*, more in accordance with those paid on well managed railroads in this country.

That "truth is mighty and will prevail," ultimately, in this, as in other important principles, we have not a doubt: and we have renewed evidence of this in the increasing attention, and decided tone of a portion of the press; and those who have long battled, almost single handed, against this oppressive monopoly, congratulate the cause and those "enlisted for the war," on the accession to their ranks of another able ally in the "Home Journal," in the last number of which we find an exceedingly well-written and just article, in the right spirit and tone, from which we shall make some extracts for our next number.

Life Boats for Ships and Steamers.

It is only a few years, comparatively speaking, since the "*life boat*"—or an improved boat, which, though filled with water, or stove, still floats, and will sustain several persons—was first introduced in this country: and, if we recollect, *Mr. Joseph Francis*, of New York, was the first to introduce them into general use, upon the packets, and steamboats, out of the port of New York—and into the United States navy. They were first constructed of wood, as were all other boats then in use; but more recently, in this department of useful industry, as in many others, metal—*iron* or *copper*—has been found not only more *durable* and *safe*, but also more *economical*. After devoting years of labor, and thought, to the perfection of boats constructed of wood, Mr. Frances turned his attention to the construction of copper and iron boats, which he found every way preferable to those made of wood; and so evidently were they superior to those made of wood, not only in point of durability and economy, but also in being *always ready for use*, no matter how long they had been exposed to a tropical sun, that he found ready supporters and associates in those enterprising and eminently useful gentlemen, Messrs. Stillman, Allen & Co., of the Novelty Works, New York—who have, at a large outlay of capital, prepared to construct these boats in the most substantial manner.

The mode of construction is by placing large sheets of copper, or galvanised iron, between two dies, of immense weight—some of which weigh 12 tons—the inner surface of which are cast in an *uneven*, or corrugated form, which gives the boat the ordinary appearance of wood, over-lapping, or of clap boards on a house. By this arrangement, the sheet of metal is brought into the shape of *one side* of the bow, or stern, of a boat, and *four* of them rivetted together makes a boat. In order to bring the sheet of metal to the desired shape, *six* or *eight hundred tons* pressure are required to be applied to the dies, which is done by hydraulic pressure, by which the lower die is elevated, and brought in contact with its fellow, and thus giving shape to the sheet of metal between them.

To the "life boat" has many a person been indebted for life—and therefore it is that we feel called upon to do what we can to make known the value of an article so important to the safety of those who travel by water—and to direct the attention of those who *ought* to use them to the "Novelty Works"—Messrs. Stillman, Allen & Co.—New York.

The following testimonals, from gentlemen abundantly competent to judged, may be useful to those who cannot make personal examination of the boats. We cannot speak of their comparative cost with other boats—but are of the opinion that it does not differ materially from the ordinary price of wooden boats of a similar size. Nothing that we can say will add to the following testimonials.

—

Steam Ship Hermann, June 19, 1848.

Messrs. Stillman, Allen & Co.,

Having had favorable opportunities of judging of the comparative merits of boats made of wood and those made of galvanised iron, I take great pleasure in testifying most decidedly in favor of the iron boats. During the tremenous gale encountered by the steam ship Hermann, on the 24th March last, her two quarter boats on the larboard side were *blown up over the davits* several times, before we could get them in upon the deck and secure them. This was done at length, with much difficulty, and with very little damage. Had the boats been of wood, I think they would have been destroyed.

I was present when the stern boat of the steamer Washington came in contact with a post at the Novelty works dock. She was twisted by the pressure at least two feet, and very much crushed. She was repaired, I am informed, at small expense, and now looks as well as ever. A wooden boat would have been destroyed entirely if subjected to the same pressure.

The metalic boat is always tight and ready for use, and with little attention will last any length of time.

Yours respectfully, E. Crabtree,
Captain of Steam Ship Hermann.

Steam Ship Crescent City, Aug. 1, 1848.

I have now on board the Crescent City, Frances' patent metalic life boats, which I consider the best and most durable boats that can be made.

C. Stoddard,
Captain Steam Ship Crescent City.

—

Steam Ship Northerner, Aug. 22, 1848.

Messrs. Stillman, Allen & Co.,

Gentlemen:—Having furnished the Northerner with five of Francis' patent galvanised iron life boats I am pleased to say they have given me perfect satisfaction.

They cannot become nail *sick*, *wormeaten* or water soaked. They cannot leak, however much exposed to the hottest sun, and are of course *always ready for use in cases of immergency*.

As to economy, as there is no expense to keep them in repair, they are decidedly preferable, and being always ready for use, are invaluable for preserving life.

For all the necessary qualities requisite for ship boats, such as durability, capacity, and safety, they are far superior to any wooden boat.

Thos. S. Budd, Capt.

—

Steam Ship Falcon, Sept. 1, 1848.

Messrs. Stillman, Allen & Co.,

Gentlemen—Francis' patent Galvanised iron life boats are now in use on board the "Falcon," and they have given me such entire satisfaction that I have ordered another set of the same kind.

I consider the metalic boat far superior to the wooden one in point of safety, economy and strength—and particularly adapted to warm climates.

Yours, etc., James M. Low.

—

Extract from a Report by Capt. Thomas Brownell, U. S. Navy, Jacob Wentworth, firm of Wentworth & Macky, John H. Rhodes, Naval Constructor.

"The superior advantages these boats present to our minds over all others are, 1st, their endurance under severe trials, it being almost impossible to meet with sufficient injury to disable them from sustaining their compliment of persons for any length of time. 2d. Their extreme lightness united with great strength. 3d. Their inability to become nail-sick, or worm eaten, or leaky from exposure to the sun, however long they may be out of the water.—4th. These life boats may be used when nothing else can preserve life, or for the daily duty of the ship, being at all times prepared for either service."

—

The official report to the navy department, of Lieut. Lynch, commanding the "Dead Sea Expedition," says that but for the "two metalic boats," the expedition would have been a *total failure*, as no wooden boat could have stood such hard service.

Extract from his letter published in the New York Herald Sept. 15, 1848:

"And in their march to lake Tiberias, their boats had to be transported over the most formidable mountain gorges and heights, and to be lowered down precipices with ropes.

"The navigation of the river Jordon was found to be most difficult and dangerous from its frequent and fearful rapids.

"Lieut. Lynch and his party plunged down no less than twenty-seven thteatening rapids, besides many others of less descent.

"The party circumnavigated the lake (or Dead sea), returned to their place of departure, and brought back their boats in good order as they were received in New York."

These two boats, after being draged over mountains and rocks, were two months on the Dead sea —the water of which is so salt as to be black and bitter.

The following ships, we are informed, have these boats in use, viz:—the Washington, Southerner, Hermann, Northerner, Crescent City, Falcon, Isabella, New Grenada, Magdelena, etc.

The following steamboats also have them:—the C. Vanderbilt, Connecticut, Massachusetts, Commodore, State of Maine, Admiral, Governor, Oregon, Hendrik Hudson, Confidence, G. W. Coffee, Splendid, etc., with many steamers on lakes Erie, Ontaria and Ponchartrain.

With such testimonials in their favor every steamboat, and every ship going to sea, should have one or more of these boats.

Report of the Syracuse and Utica Railroad Company.

The Syracuse and Utica railroad company, in pursuance of a resolution of the honorable the Assembly, adopted February 2, 1843, submits the accompanying tabular statement of the several matters required by that resolution.

During the past season the company has been engaged in laying down an iron rail of 61 pounds to the yard, in place of the flat bar heretofore used. This work has progressed as fast as the iron could be obtained There is now laid down and in use about 23 miles of new track. The iron necessary to complete a single track with suitable turnouts has been contracted, and most of the last half of it is now rolled. This is made in the State of Pennsylvania, and the whole will be received as soon as it can be transported in the spring.

Under the law which requires an iron rail to be laid upon this line of road, this company has proceeded with the intention of completing the same as early as practicable the ensuing season. It requires 5,000 tons for a single track. One half of this was contracted and made at Trenton, in New Jersey, at a cost delivered in Utica of something over $74 per ton. The last half, contracted a year later, will cost at Utica about $69 per ton.—These contracts were made at the most favorable prices at the time.

The exigency of the law referred to, and an earnest wish to meet the public expectation in respect to a new track, required the prompt purchase of the iron, although the prospect of a great deduction in the price was very clear. That reduction has now taken place, and English rails delivered in New York have been recently contracted at $52 50, whereas we paid 70 25 at Trenton, in New Jersey, for 2,500 tons, and we are now paying 67 75 per ton in New York for a like quantity, thus making a difference in the cost of the whole iron over the present price of English rails not less than $75,000, which this company has paid and assumed to pay. That part of this line that shall hereafter provide the iron rails, will have at least this difference in their favor upon an equal eqantity of iron.

It is the intention of the company to proceed immediately to lay another track as soon as the first shall have been brought into use; for experience has shown that a double track is necessary to conduct a large business safely.

In preparing for the transportation of property, it was deemed necessary to add a large increase to the stock of freight cars and engines. This addition will cost about 100,000 dollars, and it remains to be seen whether much property can be carried, and whether we have not an ample outfit for that object. Thus far the present winter there has been no accumulation of property offering to be carried beyond our means of transportation.

The tolls imposed upon this line are a serious check to the business of transportation, and while they are maintained it will not be increased to any considerable extent, as it cannot be expected that the company will pay the tolls without charging them upon the property carried.

The following table shows the whole receipts of the company from all sources, and the expenses and disbursements actually paid each year:

STATEMENT

Of the receipts and expenditures of the Syracuse and Utica Railroad Company for the years 1839 to 1842, inclusive.

	EXPENSES.			RECEIPTS.					
	Transportation.	Construction.	Total.	Passengers.	Freight.	Mail.	Miscellaneous.	Total.	Net gain over all expenses.
1839	$34,438 02	$25,393 45	$59,831 47	$122,185 29	$1,639 29	$11,350 47	$3,276 16	$122,185 29	$62,353 32
1840	66,526 65	44,285 71	110,812 36	178,509 57	1,639 29	5,317 63	1,025 62	194,872 49	84,060 13
1841	66,696 22	42,928 00	109,624 22	190,829 32	2,341 16	9,275 00	3,315 31	199,513 73	89,889 51
1842	59,970 50	38,896 94	98,867 44	155,224 95	1,620 01	11,598 75	2,714 11	169,435 27	70,567 83
1843	66,796 44	7,413 31	74,209 75	147,353 40	2,119 82	6,956 25	2,620 74	163,786 08	69,576 33
1844	80,824 53	35,678 42	116,502 95	181,647 34	3,457 09	6,956 25	1,951 70	194,681 42	78,178 47
1845	140,294 59	975 00	141,269 59	182,484 78	12,947 50	6,956 25	2,015 41	204,340 23	63,070 64
1846	159,078 33	12,112 73	171,191 06	229,708 56	19,623 50	6,289 75	160,793 84	257,637 22	86,446 16
1847	421,492 01	*3,691 44	425,133 95	285,941 61	52,494 46	7,950 00	177,812 89	507,179 91	82,045 96
	1,096,117 29	211,325 50	1,307,442 79	1,673,884 82	96,236 83	65,694 10		2,013,631 64	706,188 85

* For land

Tabular statement relative to the Syracuse and Utica railroad company, made to the secretary of state, agreeably to a resolution of the assembly, passed Feb. 2, 1843, showing the business of the road for 1847:

Length of road, 53 miles.

Cost of construction to January, 1848,	$1,132,582 18
Less amount charged to depreciation of property for reduced value of engines, cars, etc	30,000 00
	1,102,582 18
Received from 110,290¼ through passengers	220,581 00
Received from 24,709 emigrants	19,767 20
Received from 63,512½ way passengers	45,593 41
	285,941 61
Received for transportation of freight.	52,494 46
" " " U. S. mail.	1,950 00
" from miscellaneous sources.	3,793 84
" loan contracted on bonds	80,000 00
" 1st and 2nd instalments on new stock	77,000 00
Expended for repairing, operating and running the road, including interest paid	124,631 96
Amount paid for new track	248,115 66
" permanent fixtures	6,150 68
" new cars	36,383 68
" new engines	6,210 03
	421,492 01
Expended on account of construction for land, included above	3,641 94
Dividend paid February 15	40,000 00
" August 15	40,000 00
Number of locomotives	12
An undivided interest in 53 8 wheel passenger cars, " " 20 " emigrant " owned by the railroads between Albany and Rochester, and	
An undivided interest in 23 8-wheel baggage cars, " " 6 " " and mail cars, owned by railroads between Albany and Buffalo.	
Number of freight cars, etc	143
" passenger cars	9
" machine shops	2
Average number of men employed by the co	250
Number of miles run by passenger trains	105,000
" " freight and other trains	55,000
Total miles	160,000

JOHN WILKINSON, Pres't.

Senate Report on the Difficulties between the Postmaster General and the Railways.

The following report of Mr. Pearce in the United States Senate, was prepared for press several weeks ago, and unintentionally delayed. We wish it could be read by every voter in the country before the election, that they might vote for the *removal* of the postmaster general at the same time that they vote for *Gen. Cass*, *Gen. Taylor*, or *Mr. Van Buren*. It gives the true state of the case—and it is to be hoped that a remedy will be applied to the evil.

THE SOUTHERN MAIL ROUTE.

IN SENATE, JUNE 8, 1848.

Mr. Pearce, of Maryland, made the following report:

The Committee on the Postoffice and Post Roads, to whom was referred the resolution of the Senate, directing them to inquire whether any and what legislation is necessary to secure the more regular and speedy transmission of the great northern and southern mail, report:

That for several years past, prior to December last, the great southern mail was carried from Washington to Richmond, Virginia, by steamboats, on the Potomac river, to Aquia creek, and thence by railroad; that the service was well and regularly performed, and

the route better, quicker, more regular and satisfactory than any other between the same points. The cost of this route from 1843 down to July last was $32,252 per annum, and its length 131 miles. The postmaster general being unwilling to renew the contract on the same terms, this route, after much unsuccessful negotiation, was discontinued in December last, and the longer, slower, less certain and satisfactory route, in steamboats, from Baltimore, via Norfolk and City Point, to Petersburg and Richmond has been adopted. The length of this route is 350 miles, and the compensation $34,000 per annum. Besides this alteration of the principal route, several changes have been made for the local supply, which were necessarily consequent upon the transfer of the great mail. Thus the local mail between Washington and Richmond is now carried in two horse wagons, in double the time required by the railroad and steamboat company, at a cost of $13,000 per annum; nearly one half the whole sum paid to the said company for the transportation of the great southern and local mails.

On the other hand, the contract for the local supply between Baltimore and Norfolk has been discontinued. This amounted to $9,200 per annum. After making due allowance, however, for all the reductions and additions occasioned by the change of route, it appears that the old service was cheapest, best, most regular, much quicker, more convenient to the public generally, and even more advantageous to the department itself. The comparative cost of the two routes, and their adjuncts, as set forth in various letters from the postoffice department to the committee of the House of Representatives and the Senate, may be thus stated. Cost of new route:

From Baltimore, in steamboats, via Norfolk and City Point, to Richmond, supplying Petersburg also,	$34,000
Local mail from Washington to Richmond, in two horse wagons,	13,000
Local mail from Richmond to Petersburg, in wagons,	1,950
	$48,950

Additional service for the supply of small offices, near the present coach line between Richmond and Washington, increase this sum to $49,407 50.

To this must be added the cost not yet ascertained (or agreed upon with the contractors) of taking the mails from the steamboat landings at Richmond and Petersburg.

The cost of the old route and service was, in all, $47,575 48; the details of which, as stated by the postmaster general, are as follows:

Route between Baltimore, Norfolk and Richmond,	$9,200 00
Railroad and steamboat line from Washington to Richmond,	32,252 00
Railroad route from Richmond to Petersburg,	5,818 48
Horse routes, now discontinued,	305 00
	$47,575 00

Difference in favor of the old route and service per annum, besides the unascertained sum before mentioned, $1,466 02.

The postmaster general, in his letter to the postoffice committee of the House of Representatives, dated December 20, 1847, claimed a difference in favor of the new route and service of $575 48 per annum. In his letter of the 23d May, 1848, to the postoffice committee of the Senate, he says that this was true at the time, and that the change in the statement is owing to the necessity of providing for the transportation in wagons of the local mail between Richmond and Petersburg—a measure adopted by the department since December last.

The present route is thus shown to be more expensive than the old one; and the committee have abundant evidence that it is by no means so efficient.

For example, the great southern and northern mail which leaves Richmond at 6 a.m. is not received in Baltimore till 8 a.m., the following day, if the trip be performed in schedule time; and letters by it to Washington arrive at 11 a.m—29 hours. Whereas, by the old route, the mail from Richmond reached Washington the same day about 4 o'clock, and went on north, through Baltimore, without delay. Thus there is always between Washington and Richmond a delay of 17 or 18 hours, and sometimes much more, in going north; and in the reverse direction an equal or greater delay; while a letter for the south mailed at Washington in the evening, goes to Baltimore by the morning train of cars, and must remain till 11 p.m. the same day, before it can start thence for the south. These delays are very vexatious, and have given rise to great and just complaints.

It may also be safely assumed that the revenues of the department suffer, and, under the present arrangement, must continue to suffer certain and unavoidable loss by the private conveyance of mailable matter. All these delays and evils are the result of a change of route, and their correction seems to be equally demanded by public opinion and public interest. The manifest remedy is the restoration of the mail to the old route. But this the postmaster general will not do, because he declares himself without legal authority to do so, upon the terms demanded by the railroad and steamboat company. He thinks himself prohibited, by the acts of congress and the previous decisions of his department, from contracting with the Virginia steamboat and railroad company on the same terms as heretofore.

The sum of $32,252, heretofore paid the company, was made up of $12,752 for the steamboat service on fifty four miles of the route, and $19,500 for the service over the railroad, 76 miles long. In March, 1847, the postoffice department notified the company that these rates, which had been paid to the company since 1842 and 1843, could not be allowed after July of that year; though the company continued without contract to carry the mail till December last.

The legislation of congress, in relation to mail contracts with railroad and steamboat lines, may be found in the acts of July 7, '38, January 25, '39, and March 3, '45; vide pages 238, 585, and 739, of 5th vol. Laws U. S., by Little & Brown.

The second section of the first named act, declares all railroads to be post routes, and requires the transportation of the mail thereon; provided the postmaster general "can have it done on reasonable terms, and not paying therefor, in any instance, more than 25 per cent. over and above what similar transportation would cost in post coaches."

The act of 1839 prohibits the postmaster general from allowing, under the second section of the act of 1838, above quoted, "more than $300 per mile per annum to any railroad company in the United States for the conveyance of one or more daily mails upon their roads; provided that nothing in this act contained shall be construed so as in any way to remove and impair the limitations upon the power of the postmaster general imposed by that section."

The act of 1845 directs the postmaster general to classify the railroad routes, and provides that no higher compensation than that now allowed by law shall be paid for the conveyanee of the mail on any railroad or railroad and steamboat line of the first class, etc.

Under these laws, the postmaster general considered himself prohibited from paying to the Virginia railroad and steamboat company more than $237 50 per mile per annum for transporting the mail on their road.

One of his predecessors arrived at this result thus: the act of 1838 limited the compensation to 25 per cent. advance on the cost of similar transportation in postcoaches; and the postmaster general says that $190 per mile was the highest compensation then paid to any coach line in the United States for transporting the mail. To this sum he added 25 per cent., and the result was $237 50, which he considered the maximum allowance authorised by law for one daily mail.

This seems to the committee an arbitrary rule. It does not follow that because the highest price now paid for transportation of the mail in coaches is $190 per mile, that the great southern mail should be transported between Richmond and Washington, in post coaches at that rate; and the similar transportation in post coaches, contemplated by the law, cannot mean such service between other points and on other routes, and must signify that between the same points or termini. Now, it is not pretended that the post master general could have the great mail transported between Washington and Richmond, in post coaches, at $190 per mile.—On the contrary, the only offer recently made to carry the great mail between these points, in *four horse vehicles*, constructed for the purpose, was for the sum of $128,000 per ann.; which, as the route is 121 miles long, would give about $232 per mile per annum; and 25 per cent. added to that would exceed considerably the amount demanded by the company.

Nor can this demand of $28,000 per annum for transportation of the great mail, in four horse vehicles, over this route, be con-

sidered exorbitant. The department now pays $13,000 per annum for the conveyance of the local mails on the same route, in two horse wagons; and the size and weight of the great mail is much more than double that of the local mail. An examination as to this, in the month of June, 1847, showed the average weight of the mails going south to be 3,000 pounds. The largest mail during that time was 5,200 lbs. During the session of congress it would, of course, be much heavier.

Upon the whole, therefore, it is very clear to the committee, that the postmaster general was not restricted by a proper construction of the law, to $337 50 per mile, which was his offer to the Virginia company. And, though they give him credit for a vigilant watch over the interests of the department, and are sensible how easily incorporated companies, as well as individuals, may be induced to demand of the government more than a service is really worth, they must think that he would have consulted the requirement of the law, the economy of the public money, and the efficiency of the mail service, by renewing the contract with the company for the same sum as that which he had been paying for more than two years after he came into office.

In relation to the steamboat part of the route, the postmaster general assumed that there was a distinction between that and the railroad part, and that he could not properly allow for the former what he offered for the latter. He insisted upon deducting 12½ per cent. from the mile price of the railroad part of the route, making in all about $1,500 less for this part of the route.

In this the committee see no legal reason. Neither the act of 1838, nor any other act make such or any other distinction. The act contemplates three classes of railroad routes, "including those in which the service is partly by railroad and partly by steamboats;" and the postmaster is directed to classify them "according to the size of the mails, the speed with which they are conveyed, and the importance of the service." The postmaster general himself considers this as a first class route, as it certainly is. The company is subject to unusual difficulties and expenses on this part of the route, which, indeed, seem to be recognised by the legislation of congress.

In 1842 congress passed a resolution authorising the postmaster general to extend the contract for the conveyance of the mail on the Potomac for four years from the termination of the then contract, in such a way as to receive the regular transmission of the mail by means of ice boats, etc. The price of that contract was $12,572 per annum, as before stated, which is less than the postmaster general's maximum railroad price. In the performance of their service on this part of the route the company have been obliged to keep two instead of one ice boat always in readiness for use. These boats have been procured at great expense, and have been very successful in keeping the navigation of the Potomac open during the hard weather of winter. One of these boats was cut thro' and sunk in the winter of 1845–6, while in the performance of this service—a circumstance which shows how much greater the expense of this part of the route must be in winter, since such are its hazzards.

The only difficulty in restoring the contract to the old route arises from the fact that the usual agreement has not been made for the discontinuance of the new contract. But to this may be replied that no contract has yet been *executed* by the parties, although one has been prepared for that purpose.

From Baltimore to Norfolk the service is performed by the Baltimore steam packet company, and this company is quite willing to relinquish its part of the service, without any claim for damages, as appears by the letter of their agent, appended to this report, if the carrying of the mail be restored to the railroad company. The residue, or river part of the present service, is performed by Mr. R A. Mayo, whose pay for this part of the route is $6,000 per annum. He is understood to be unwilling to relinquish his part of the contract without damages, though it is not believed to be at all profitable.

The committee suppose that, at the most, and under any circumstances, he could not suffer any loss by the discontinuance of his contract, which would be equal to the increased expense of the present route over the former one.

They therefore propose to leave the question of indemnity to him to the future action of congress, and they report a resolution providing for the restoration of the mail to the route which public economy and the public interests indicate as every way the best and most efficient.

BALTIMORE, APRIL 28, 1848.

DEAR SIR: I am directed by our board, in reply to yours of yesterday, to state that the Baltimore steam packet company were induced to contract for the transportation of the mail between Baltimore and Norfolk at the price paid them, $28,000, from the apprehension that, unless the contract was taken by them, it might be by other parties who would run an opposition line for passengers between the above points. We would willingly give up the contract, and make no claim for damages, if it is the pleasure of congress to transfer the contract for the mail to the railroad and steamboat line between Washington and Richmond: but, having incurred a heavy loss and expense, so far, to meet the views of the department, would not be willing to give up the contract except for the object stated.

With great respect, your obedient servant,

M. N. FALLS,

Agent Baltimore Steam Packet Co.

To Hon. J. A. PEARCE,

U. S. Senate, Washington.

Note, by the Editors of the National Intelligencer.

We have been requested to state that the difference in favor of the old line is $4,000, instead of $1,600; and that the Bay Line starts at 4 P. M., instead of 11 o'clock, A.M., which causes a detention of the mail at Baltimore twenty one hours.

The Plough, the Loom and the Anvil.

AGRICULTURE AND MANUFACTURES.

We recently copied, from this valuable periodical, an able article on the "Iron Trade of the Union." We now take, from the National Intelligencer, an article made up from the 3d number of the work, which gives some striking and interesting facts, which ought to be widely circulated—and therefore we give them a place in the Journal, that we may do our part in aid of so good a *cause*, and so valuable a work; and also to show the estimation in which the labors of Mr. Skinner are held by such sterling men as the editors of the National Intelligencer.

They say: "We have received and run over with great interest, the 3d number of the periodical entitled "*The Plough, the Loom and the Anvil*," edited by J. S. Skinner & Son, published at Philadelphia, and to be had of all the principal booksellers and news agents throughout the Union. We wish that we had room for transferring to our columns either of its leading longer articles on Agricultural Schools, on the Iron Trade of the Union, on the art of Butchering, on Maryland Farming, and on Wheat Culture. Deprived of the means of extending the publicity of these, by the pressure of other matters, we have made up from this valuable monthly publication a column of shorter articles, which we hope will be acceptable to our rural readers, and to those of our city readers who have rural tastes:"

From The Plough, the Loom and the Anvil.

What is Needed to Give to the Farmer and Planter of the United States the Markets of England.

In our last number, page 75, we pointed out to our agricultural readers the mode by which they could secure themselves the great market of England for their grain and flour. We now invite their attention to the following letter from an American gentleman, writing from London under date of July 6th. He says:

"The crop of wheat here, it is thought, will not exceed the usual average; but of potatoes, the yield promises to be very abundant, and the prospect for them and for grain is also very good on the continent. I have no doubt, however, that after February next, when the duty ceases, this country will be a constant customer to us for wheat and flour, though the extent of it will be governed by the prices with us; and in ordinary seasons it probably will not be taken to any considerable extent at over $4 50 and $5 per bbl."

Let the price of flour be reduced to $4 50 per barrel, and large quantities will be taken, *unless the price should fall so low in England that it will not be taken at more than* $3 50. To accomplish this object, nothing is needed but to convert our consumers of food into producers of food, by repealing the present inefficient tariff, and thus depriving the farmer of his present protection. Food will then be low enough for export to England, and then the planter will raise less food and more cotton, and cotton will be so cheap in England as effectually to do away with the East India competition. What, then, however, will be the condition of the planter?—What will be the value of his land? What that of his hands? Will he then be able to live better or worse? Will he feed, or clothe and lodge his hands better or worse? Let him answer the question to himself, and in

doing so, let him for once forget party—if he can. If he will do this, he will say to himself that throughout the world the plough has prospered in the vicinity of the loom and the anvil, and throughout the world it has failed to prosper where the loom and the anvil have been very distant, compelling its owner to waste labor and manure in the work of transportation and exchange. Let him then ask himself the remedy, first satisfying himself of the difference between the raising of tons of hay and potatoes to be consumed on the ground, on the one hand, or hundred weights of wheat or cotton to be sent from the land, on the other.

Since writing the above, we have met with an article from the London Times, on the grain crop of the United States, from which we take the following extract for the information of the farmers of the Union.

"Supposing the above tables to approach anything like correctness, one conclusion would seem apparent. A considerable surplus of wheat is produced (taking the American crop on the basis of 1847) over the amount required; and *prices must, consequently, decline in all open markets* until they reach a point which will lead to an increase of consumption sufficient to take off such surplus, or until a diminished production shall ensue in consequence of their passing below a remunerating rate."

In the same article is given a list of the open markets of the world—those which export food—and they are Russia, Egypt and Syria, eastern Germany, Denmark and Cicily—all of them the poorest countries in Europe; those which waste most labor and manure in the work of transportation and exchange, and have least of either to apply to that of production. Such are the countries with which the United States are required to compete, and a belief is confidently expressed by the writer in the Times that they will do so.—That they may do so, all that is necessary is that they should shut up their furnaces and factories, and drive the prosperous consumers to the west, there to become poor producers, and they may then, in the words of the Times, "boldly enter into competition with those of any other nation in the great corn market of the world"—even with the Russian boor and the Egyptian fellah. When consumers abounded in Egypt and Sicily, the producers were rich. They themselves consumed largely and had much to spare. The consumers have disappeared, and the producers have become poor. They can consume little themselves, and they have little to spare.

Flannel Mills Stopping.—"The mills of the Hon. Mr. Hale, of Haverhill, have stopped, in consequence of the great stock of flannels on hand and the limited demand the present season. We understand that the flannel business has paid little or nothing for a year past."—*Lowell Courier.*

When we meet with such notices as the above, (and they are now of constant occurrence) we cannot avoid reflecting on the injurious effect to the farmer that results from compelling men to travel west to *raise* food, when they would prefer, if at all possible, to stay at home and *consume* it. Every increase in the ratio of producers to consumers is an injury to the farmer and planter. Every increase in the ratio of consumers to producers is a gain to them; and yet we see farmers and planters throughout the country uniting to sustain a policy that builds up, *at their cost*, cities that are filled with people who live by profits of transportatiou and exchange. If every county in the Union had its mills, or furnaces, or other places of exchange, as it should have, we should hear no more of furnaces and mills stopping, nor should we witness such rapid growth of cities, while the country was being depopulated, because of the exhaustion attendant upon the cost of transporting and converting cotton and wool into cloth. When will the farmers and planters open their eyes to the fact that protection to the loom and the anvil is in reality protection to the plough?

"*Shortness of Hands*"—*how accounted for*—*Harvest.*—Last week completed, or nearly so, in this county, a long laborious harvest, including hay, wheat and oats. Each of these crops have been unusually abundant and of the best quality. The increased quantity of produce, as compared with the last preceding harvest, has doubled the amount of the farmer's labor in securing it. The increased quantity, a shortness of hands, and the brittleness of the weather, have subjected the farmers to a long laborious harvest; but their toil is rewarded by the extraordinary quantity and good quality of their products.—*Delaware County Rep.*

"The shortness of hands" will always be felt where the pursuits of labor are all of one kind; whatever tends to foster the greatest variety of employments, will be found most advantageous to all, and most especially to the farmer and planter, because their operations are simple, and require but little experience to perform those of them by which they are most liable to be pressed. Where the loom and the anvil, the saw mill, and the wind mill, the tanner and the shoemaker, labor in the neighborhood and buy of one another, each can be called upon at a pinch to help the other. There will be seasons of comparative leisure, as well as of business, in the employments of all, occurring at different seasons of the year; and if the farmer would insist on having the loom and the anvil, the iron monger and the miller, the tailor and the carpenter, come and settle near his plough: that is, if he will require a system of legislation that will make it most profitable for those who manufacture for him to be as near to him as possible, in that case, when the harvest presses, and his crops are threatened to be overtaken by summer storms and the frosts of winter, he can command help from neighboring mechanics and artisans, who will be willing to take in payment for their labor a portion of the very crop which their labor has assisted to save from destruction. Look where he will—view his interest and condition in whatever light he may, and the farmer and the planter will see that, instead of detracting from the value and diminishing the profits of other branches of industry, the more they prosper the better for him. The Earl of Leicester—otherwise and better known as the great Norfolk farmer—used to say that he would like to know that each of his tenants could drink his bottle of champaign every day; and so we say to the farmer and the planter, it would be better for them if every woodsawyer on the wharves could make money enough to buy their strawberries and their cream every day of their lives.

Light Engines and Light Trains.

There appears to be a growing disposition, on some of the English railways to try lighter engines for their branch roads. We recently published an article on this subject from the London Morning Chronicle, and we now give an article from the Civil Engineer and Architects' Journal on the same subject, from the Proceedings of the Institution of Mechanical Engineers, at their meeting on the 13th of June last, as we wish to keep up with the advance and changes of the opinions of practical men of experience both at home and abroad.

*Light Engines.—Light Trains.**—The secretary read the following paper on the above subject, by Mr. Samuel, engineer of the Eastern Counties railway:

"The small locomotive lately introduced on the Eastern Counties railway, having attracted some considerable attention, has induced me to present to your notice a short description of it; and at the same time to offer a few observations on the practicability of the principle to the conveyance of passengers. This carriage was constructed under my superintendence, for the purpose of conveying myself and inspectors on the lines of the Eastern Counties railway, and thereby avoid the great expense of special engines. The total length of the carriage is 12 feet 6 inches, and includes machinery, water tank, and seats for seven passengers, on one frame, which is hung below the axles, and is carried on four wheels, of 3 feet 4 inches in diameter, the floor being within 9 inches of the level of the rails. It is propelled by two cylinders, $3\frac{1}{2}$ inches in diameter, with a 6 inch stroke, placed on each side of the boiler, and acting on a crank axle. The boiler is cylindrical, placed vertically, and is 1 foot 7 inches in diameter, by 4 feet 3 in. in height; containing a fire box 16 in. diameter, by 14 in. high; and 36 tubes, 3 feet 6 in. long, by $1\frac{1}{4}$ inches diameter; giving $5\frac{1}{2}$ feet heating surface on the fire box, and 38 feet on the tubes. The engine is fitted complete, with link motion, feed pumps, etc. The water tank is placed under the seats, and will contain 40 gallons. This carriage is capable of conveying seven persons, at the rate of 30 miles an hour. It has, at times, attained a speed of 44 miles; the consumption of coke is only $2\frac{1}{2}$ lbs. per mile; and the weight of the whole machine does not exceed 25 cwt., including coke and water. The result of observations, which I have for a considerable time been making, on the branch passenger traffic of railways, has been to convince me that, on the whole, it is

* This paper fully supports our remarks in the "Journal" for December last, vol. ix, page 368.—[Ed. C. E. & A. J.]

not remunerative, and in some cases is even worked at a loss. I have been therefore led to consider whether the expenses might not be reduced, by the introduction of a system of steam carriages more suitable to the amount of traffic to be conveyed. It is evident that the more we can reduce the dead weight of the trains, and engines, in proportion to the number of passengers, the less will be the expense of repairs, both of the carrying stock and engines, and of the way and works of the line. The average weight of a train on the branch lines of the leading railways, is 56 tons: the number of passengers conveyed by each train, not exceeding 35 to 40 on many of the branch railways in England. Supposing each passenger, with luggage, to weigh 1½ cwt., the total weight of passengers conveyed is about 3 tons; or, in other words, for every ton of paying load we are now carrying by the present system of locomotion, we have from 18 to 20 tons of dead weight. It is, therefore, in a commercial point of view of the greatest importance, not only to railway companies, but to the public generally, that some less expensive, and at the same time equally safe means of transit be adopted. It is therefore proposed to substitute steam carriages for locomotives on branch railways, similar in construction to the drawings herewith produced. These drawings represent a patent steam carriage, now in course of construction under my direction, by Mr. W. B. Adams, the patentee, for the Eastern Counties railway company. The following are a few of the principal dimensions: diameter of cylinders, 7 inches; length of stroke, 12 inches; diameter of driving wheels, 5 feet; distance between centres, 20 feet; width of framing, 8 feet 6 in. The boiler is of the ordinary locomotive construction; 5 feet long by 2 ft. 6 in. diameter. The fire box is 2 feet 10½ in. by 2 feet 6 in. There are to be 115 tubes of 1¾ inch diameter, and 5 feet 3 in. in length, giving 210 feet of heating surface in the tubes. The area of the fire box is 25 square feet, giving a total of 235 feet of heating surface on the boiler. The consumption of coke I have estimated at 7 lb. per mile, at a velocity of 40 miles per hour. The total weight of the steam carriage, with its coke and water, will not exceed 10 tons, and it will be capable of conveying about 42 passengers, at a speed of 40 miles per hour. The water is to be carried below the floor of the carriage, in wrought iron tubes of 12 inches diameter, and 12 feet long. One great object attained in this machine, is the reduction of the centre of gravity, and the consequent absence of lateral oscillation. This carriage is intended for the Enfield and Edmonton branch of the Eastern Counties railway, and is expected to be at work in abont three months from this date. When its practical utility and economy has been proved. I shall be glad to submit the result to the Institution at a future meeting: as I feel convinced that the subject is one deserving the attention of the members, and of all parties interested in the profitable working of railways. I may also add that were the system of light steam carriages adopted, branch railways might be constructed at a very small cost indeed, compared with the present outlay (which is unavoidable so long as the present system of heavy engines is continued:) and the advantages of railway accommodation might be extended to those districts, which can never hope to enjoy them, if the construction of railways continue to require such large outlay of capital."

Mr. M'Connell also read a communication on the same subject. He had declined giving any opinion, wishing to take the sense of the Institution upon the merits of the engine in question.

Mr. Samuel considered that his engine would save a considerable sum in the wear and tear of the rails, if not in coke, in consequence of the great reduction in the weight of the engine. He estimated the wear and tear of rails at £80 per annum, independent of the loss in the tyres of driving wheels, which was a large source of outlay. He suggested the running of a number of small trains on a light description of rails, which would reduce the cost of branch railways, and at the same time be adequate to all the local traffic.

A member inquired, how the projector would be enabled to convey heavy castings upon such a line?

Mr. Samuel said that might be obviated by distributing the weight over several trucks, as was sometimes found necessary upon the lines now in use; and, in case of holiday excursions, he proposed running a number of these small trains, instead of the present heavy ones.

Mr. M'Connell said, that he presumed it would be desirable to have the rails sufficiently heavy to allow an ordinary locomotive to travel over them, in case additional carriages had to be taken on at certain points of the line for extra traffic arising from holidays, races, etc.

Mr. Samuel said, it would be desirable that such should be the case, where it could be done. It was proposed to construct these rails on longitudinal bearings of timber—therefore, a comparatively heavy engine might traverse it without danger. In reply to further questions, Mr. Samuel said, that the pressure usually used in this engine was 150 lbs., but it was not proposed to work the branch engines at a pressure of more than 80 lbs.

Mr. M'Connell and Mr. Cowper considered this engine peculiarly calculated to be worked with economy on the branch lines, as it would tend very much to make them pay, by economising the locomotive expenditure.

Mr. Buckle inquired, how the distance of the wheels would suit the present turn tables?

Mr. Samuel said, it was usual, at every terminus, to have a large turn table, suited for engine and tender; and, where there was not such a contrivance, they could make a triangle, which would be as good. The increased speed on these trains would obviate the necessity of frequent changes of carriages—and he estimated the average cost of conveying the passengers would not exceed one fifth of a penny per mile. Many of the branch lines did not pay, and some economising principle was needed to effect that object. In answer to further questions, Mr. Samuel said, that he proposed to work the goods traffic in a similar manner.

Mr. M'Connell still thought that the rails should be equal on these branch lines, to bear the ordinary engines now in use on the main lines, in case they went over them; the wear and tear would also be less upon strong rails.

Mr. Cowper considered the ordinary rails in use were much too light, and, at the present price of iron, he thought it bad policy to lay down so light rail.

The meeting expressed their entire approval of the engine for all the purposes of the branch line of railway.

From the Civil Engineer and Architects' Journal.

On Chemical and Electrical Forces.

BY PROFESSOR FARADAY.

Continued from page 647.

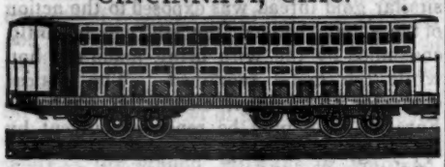
In commencing his *sixth lecture*, Professor Faraday said he was about to direct the attention of his auditors to a different condition of the electric force from that in which he had hitherto considered it, wherein the phenomena not only differ from, but are in many respects directly opposed to, those exhibited by chemical action and voltaic electricity; and yet the forces are the same. In the first place, he exhibited voltaic electricity in a higher state of tension than he had before done, by employing a water battery, consisting of a great number of pairs of plates, by which arrangement a small quantity of electricity in a high state of concentration was excited. In this condition voltaic electricity nearly resembles the electricity excited by rubbing a stick of sealing wax or a rod of glass. In the ordinary development of voltaic electricity, the effect is produced only when the current is passing, and ceases when it is broken; but in frictional electricity the power may be exerted when there is no current, and when the source of power is withdrawn. In this respect, indeed, the water battery evolves electricity resembling that of the eletrical machine, and forms the connecting link between frictional and chemically excited electricity, serving to prove that they are identical. In the first place, Professor Faraday showed that by touching an electroscope with only one of the wires of the battery, the gold leaves diverged, and continued divergent when the wire was removed, thus exhibiting the development and the retention of the power when there was no current passing. When the wire from the opposite pole of the water battery was brought in contract with the electroscope, the gold collapsed. To show the identity of the electricity thus evolved by the battery with the electricity excited by friction, Professor Faraday caused the gold leaves of the electroscope, when diverged by the battery, to be collapsed when an excited rod of glass was brought near, and to be made more divergent by an excited rod of gutta percha, or by a rod of shellac. The different means by which the effect is produced affords no ground for supposing the electricity of the battery and that excited by friction to be distinct, for what is termed frictional electricity may be excited in varieties

of ways, and is, in fact, continually being called into action, without our being sensible of its presence. The mere act of dusting a piece of metal with flannel was shown to excite electricity by its causing the leaves of the electroscope to diverge. We can scarcly touch anything without exciting this power, which however minute and imperceptible in its development in these instances, is precisely the same force which produces the grandest phenomena of nature—thunder and lightening. Having given illustrations of the similarity of the forces developed by chemical agency and by friction, the Professor dwelt on the apparent difference between them. One remarkable difference is, that the substances by which frictional electricity is excited undergo no change, the metals and the glass remaining just the same after having developed the power as before; whereas voltaic electricity cannot be excited without chemical action, and an apparent destruction of the zinc. Another variation in the phenomena of voltaic and of frictional electricity is exhibited in their conduction through various substances. Water, for instance, which is so imperfect a conductor of voltaic electricity, will readily conduct the whole quantity excited by a powerful electrical machine, through the moisture contained in a wetted silk thread. Frictional electricity is spread over the surfaces of bodies and does not enter them. This property was exhibited by several experiments, the most remarkable of which were the following:--A small metal ice pail was placed on an insulated stand, and then a metal ball, suspended by a silk string, and charged with electricity, was lowered into the pail. The electrtcity instantly diffused itself on the outside of the ice pail, and there was none within; for when the ball was again lowered into the pail and withdrawn, it produced no effect on the electroscope, but when the ball touched the outside the instrument was strongly effected. In the other experiment a wire gauze vase was substituted for the ice pail, with exactly similar results. When an electrical machine is excited, every person within sight of it is more or less affected by its influence, and a condition of electricity is induced in that part of their bodies towards the machine of a different kind from that developed by the conductor; and on the opposite side, or that farthest from the machine, electricity of the contrary kind is induced. This induction of positive and negative electricity on distant bodies, leads, as Professor Faraday observed, to important practical consequence. He had, he said, been often consulted by Government as to the property of having metal roofs on the powder mills at Waltham Abbey, and he had always objected to them as dangerous, because a thunder cloud might induce in the extended metal surface, an amount of electricity capable of discharging itself of earth. In illustration of this, a large insulated metal ball, placed at a distance of two feet from the conductor of the machine, was brought near a jet of gas, which became ignited by the induced electricity passing off in a spark to the metal gas pipe, though the ball was far too distant from the conductor for any spark to pass between them. The experiment was repeated several times, and each time with the same success.

The chief point to which Professor Faraday directed attention in the *seventh* and concluding lecture was, the cause of the difference between the phenomena of voltaic and of frictional electricity, his object being to prove that they are really identical. The marked difference between fricional and voltaic electricity, which were dwelt upon so much in the preceding lecture are caused entirely by the different degrees of intensity in which the force is developed, and Professor Faraday showed, in the concluding lecture, that, by diminishing the intensity of frictional electricity, the phenomena may be rendered similar; the great difficulty in showing these effects being caused by the very small quantity of electricity that can be evolved in a given time even by the most powerful electrical machine when compared with the amount evloved by the voltaic battery. The different appearances of the sparks emitted in the highest state of intensity by the electrical machine from those produced by the discharge of electricity, accumulated in the Leyden jar, and the alterations the light and the length of the sparks may undergo by being transmitted through various media, were shown in numerous experiments. Though the rapidity of the electric spark is evidently very great, it far exceeds in reality the appearance to the eye, for the duration of the impression on the retina after the light is extinct occasions a prolongation of the effect. It has been ascertained by Mr. Wheatstone, that the duration of the light of the spark is less than the millioneth part of a second, and Prof. Faraday exhibited the mode by which this fact has been established. A concave mirror, placed horizontally, was made to revolve with great rapidity by multiplying wheels, and when in action, a bright light from the combustion of lime was reflected to a focus on the ceiling. The rapidity of the motion caused the light to form a circle, in the same manner as the turning rapidly round of a lighted stick or of any other bright object seems to form a circle, in consequence of the impression on the retina remaining until the effect is renewed by the return of the light to its former place. When an electric spark was substituted for the permanent light, each spark was seen separately, and no circle or prolongation of the light was produced. The velocity of the mirror and the number of successive sparks being known, an approximation can be obtained to the duration of the light. It is in consequence of this instantaneous duration of electrical discharges that they fail to produce many of the effects of voltaic electricity, and if the continuous action of the latter during a second could be concentrated one million times its effects would be tremendous.—By diminishing the intensity of frictional electricity while retaining its quantity, Prof. Faraday ignited gun powder, which was blown away without ignition by the undiluted discharge. The following experiment afforded a good illustration of the different actions of frictional and voltaic electricities caused by the concentration of force in the former. A gold thread twisted with silk was deflagrated by a discharge from an electrical battery without injuring the silk, the action having been so instantaneous that there was not time to burn the silk, though the metal was destroyed by the heat evolved. When similar gold thread was exposed to the action of the voltaic battery, the silk was instantly consumed by the wire being made red hot, while the metal remained. The statical character of frictional electricity, Professor Faraday said, may be rendered current by applying a conducting substance to draw it off from the machine as quickly as it is excited, and the imperceptible effects of such a current prove how small the quantity of electricity excited really is, and it is only by allowing it to accumulate that we become sensible of its presence. The phenomena of lightning and thunder are owing to the facility with which Franklinic electricity can be accumulated, and thus reserved in store for an instantaneous discharge. Some specimens of the effects of lightning are exhibited on the lecture table. A number of splinters from a riven oak, a branch from a mulberry tree, the rent and shivered handle of a hay fork, and the partially melted iron cable of a ship were displayed. The latter is such an extraordinary exhibition of electrical power, that Prof. Faraday said nothing but the strongest evidencc could have induced him to believe it: the ship was stated to have been struck with lightning during an earthquake at Callao.—This rending power of frictional electricity cannot be imitated by the voltaic battery, but all other phenomena of the one kind can be produced by the other. The recomposition of chemical compounds by the discharge of the Leyden jar was shown by the decomposition of iodide of pottassium, small, indeed, in effect, but corresponding with the quantity of electricity which the electrical machine evolves. The alliance of the pnenomena of the two electricities had been shown in the course of these lectures, Prof. Faraday observed, by their physical effects in communicating shocks, by the equal rapidity of their transmission, by their decomposing and heating powers, and by the communication of magnetism. The difference between the two consists solely in the degree of intensity, the electricity of the machine exciting a small quantity in a high state of intensity, while the voltaic battery evolves a much larger quantity in a low state of tension. Professor Faraday, taking a small flock of gun cottan and exploding it in the flame of a candle, observed that the chemical force thus instantaneously called into action was equal to the production of an amount of electricity greater than would be contained in 500,000 charges of the powerful battery of Leyden jars which he had employed to deflagrate metal wires and gold leaf; and the important problem now remaining to be solved was, the conversion of such rapid chemical actions into current forces. Chemical decomposition he said, when taking place less energetically, had been shown to evolve electricity, which be-

came manifest and available as a current force by the voltaic battery, and it was quite within the reach of scientific discovery to render the most energetic phenomena of chemical force sources of continuous power.

CAR MANUFACTORY,
CINCINNATI, OHIO.



KECK & DAVENPORT WOULD RESPECTFULLY call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description, Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.
Cincinnati, Ohio, October 2, 1848. 41tf

TO CONTRACTORS.
GREAT LETTING OF WORK ON THE CLEVELAND, COLUMBUS & CINCINNATI RAILROAD.

PROPOSALS will be received at the office of the engineer, in the city of Cleveland, until the 1st day of November next, at noon, for the grading, bridging, and masonry, also timber for the superstructure of one hundred and thirty miles of the Cleveland, Columbus and Cincinnati Railroad, lying between the cities of Cleveland and Columbus. Said work comprises some of the finest ever offered to contractors, and will be let in long or short sections, as may be desired. The approximate quantities are 3,500,000 yards earth excavation, 30,000 perches masonry, 300,000 cross ties, or sleepers, etc.

Plans, profiles and specifications of the work will be ready for inspection at the offices in Cleveland and Columbus on and after the 15th of October next. Payments will be made monthly, on a fair average value of work done; twenty per cent. of which will be retained to ensure fulfillment of contract.

FREDERICK HARBACH, Eng.
September 21, 1848. 3t41

TO CONTRACTORS.
SEALED proposals will be received at the office of the Lafayette and Indianapolis Railroad Co. in Lafayette, until the 11th day of October next, for the Grading, Masonry and Bridging of that part of said road lying between the summit south of Durkee's Run, near Lafayette, and Lebanon, in Boone county, about 34 miles. Also, for the wooden superstructure for the same, in a distinct bid.

Plans and specifications will be exhibited by the engineer. By order of the Board.

ALBERT S. WHITE, Pres't.
Lafayette, Aug. 17, 1848. 6t35

DEAN, PACKARD & MILLS,
MANUFACTURERS OF ALL KINDS OF
RAILROAD CARS,
SUCH AS
PASSENGER, FREIGHT AND CRANK CARS,
— ALSO —
SNOW PLOUGHS AND ENGINE TENDERS
OF VARIOUS KINDS.
CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and
SHAFTING FOR FACTORIES.

☞ *The above may be had at order at our Car Factory,*
REUEL DEAN,
ELIJAH PACKARD, } SPRINGFIELD, MASS.
ISAAC MILLS,
1y48

RAILROAD IRON.
3000 TONS, ABOUT 60 LBS. PR lineal yard—deliverable early in the Spring, and of undoubted quality, can be contracted for at a low rate. For sale by

DAVIS, BROOKS & CO.,
68 Broad street.
New York, Sept. 16. 1848, 39tf
Also on hand—1000 Tons best quality Rails.

FULLER'S PATENT INDIA RUBBER CAR SPRINGS.—These Springs have been in use for nearly four years, with most complete success, and they are now in use upon most of the principal roads in this country. They are made of the best material, are economical, light, and very easy in their motion—all persons using them are guaranteed against adverse claims.

Offices 78 Broad street New York, and Jas. Lee & Co., 18 India wharf, Boston.

Railroad companies are cautioned against the statements made by the New England car company. The India rubber used by the patentee is the best that can be made, and does not conflict with any existing patent. The rediculous statement that a patentee may not vend his own invention needs no remark.

The patent for these springs was granted to W. C. Fuller, in Oct., 1845, in the United States and in England; A Mr. Ray claims to have invented another spring, which counsel advise, is a mere evasion of Mr. Fuller's patent, and proceedings are being taken to stop that infringement.

"The New England Car Company" have published an article from the pen of Mr. Hale, president of the Boston and Worcester railroad, expressing his opinion concerning these springs—but they have forgotten to publish the whole of that article; it is therefore given in full now, and the portion omitted by the New England car company is printed in italics, that the public may judge of the manner in which this "company" pervert Mr Hale's meaning.

G. M. KNEVITT, Agent,
78 Broad St., New York.
September 30, 1848.

[From the Boston Advertiser of the 7th June.]

INDIA RUBBER SPRINGS FOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring which we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. *Each spring is composed of several circular layers or rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced into general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr. Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper.*"

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
y25 Philadelphia, Pa.

TO RAILROAD COMPANIES AND MANufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of al. sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-2 TO 8 INCHES DIAMETER.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
28 Platt street, New York.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

DIRECT ACTION ENGINES
FOR STEAMBOATS.

THE PATENT DOUBLE CYLINDERS,
AND ALSO
THE ANNULAR RING PISTON ENGINES, of Messrs. Mauldslay, Sons & Field, of London, may be built in the United States, under license, which can be obtained of their agent,

THOMAS PROSSER, C. E.,
28 Platt street, New York.

May 6, 1848.

WILLIAM JESSOP & SONS,
CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving, from their manufactory,

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—Square, flat & octagon.
Best warranted Cast Steel—Square, flat & octagon.
Best Double and Single Shear Steel—Warranted.
Machinery Steel—Round.
Best and 2d gy. Sheet Steel—for Saws and other purposes.
German Steel—flat and sqr., "W. I. & S." "Eagle" and "Goat" Stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms, by WM. JESSOP & SONS,
91 John Street, New York.

Also by their Agents—
Curtus & Hand, 47 Commerce St., Philadelphia.
Alex'r Fullerton, & Co., 119 Milk St., Boston.
Stickney & Beatty, South Charles St., Baltimore.

May 6, 1848.

NEW PATENT CAR WHEELS.

THE SUBSCRIBERS ARE NOW MANUfacturing Metallic Plate Wheels of their invention, which are pronounced by those that have used them, a superior article, and the demand for them has met the most sanguine expectations of the inventors. Being made of a superior quality of Charcoal Iron, they are warranted equal to any manufacture.

We would refer Railroad Companies and others to the following roads that have them in use. Hartford and New Haven, Connecticut River Railroad, Housatonic, Harlem, Farmington, and Stonington.

SIZER & CO.
January 29, 1848. tf Springfield, Mass.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON
Mar. 20tf 4 South Front St., Philadelphia.

TO MACHINISTS & MANUFACTURERS. The Subscribers have taken the READING CAR AXLE MANUFACTORY—and are prepared to execute orders for *Axles of every description*, and Wrought Iron Shafts for Steamboats, Mills, etc., made from superior material, at short notice. Address *Reading, Pa.*

ANDREW TAYLOR & CO.
August 5, 1848—3m*

RAILROAD IRON--SHEET IRON--BRASIER'S RODS—HOOPS—SCROLL—BANK'S BEST—& OTHER GOOD MAKES OF ENGLISH IRON.

100 Tons Railroad Iron—Staffordshire make—56 pounds per yard—shipped from Liverpool 20th July, expected to land on wharf from 10th to 20th September.

Also have Invoices of Sheet Iron, Brasier's Rods, Hoops, Scroll, and Band Iron, Banks best, and other good makes of English Rolled Iron, to arrive, suitable for Railroad Axles, etc., etc., equal in quality to American Rolled Iron. I have agency of several best makers in England and Wales, and can import for Railroad Companies, and others, on best terms, and at much less prices than they can be supplied from American Mills.

DAVID W. WETMORE,
218 Water street.
New York, Sept. 9, 1848. 6w*

MATTEWAN MACHINE WORKS.

THE MATTEWAN COMPANY HAVE added to their Machine Works, an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern—also, *Tenders*, *Wheels*, *Axles*, and other Railroad Machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton*, *Woollen*, or *other* Mills, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,
Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.
Turning Lathes, *Slabbing*, *Planing*, *Cutting*, and *Drilling* Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at

39 Pine Street, New York.
WM. B. LEONARD, *Agent.*

FAIRBANKS' RAILROAD SCALES.

THE Subscribers are prepared to construct at short notice, *Railroad* and *Depot Scales*, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accurracy of weight and despatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon Railroads, either in the United States or Great Britain; and the manufacturers refer with confidence to the following in the United States.

Eastern Railroad,	Boston and Maine R. R.,
Providence Railroad,	Providence & Wor. R.R.,
Western Railroad,	Concord R. R.,
Old Colony Railroad,	Fitchburg R. R.,
Schenectady Railroad,	Syracuse and Utica R. R.,
Baltimore & Ohio Road,	Baltimore & Susq. R. R.,
Phila. & Reading Road.	Schuylkill Valley R. R.,
Central (Ga.) Railroad.	Macon and Western R.R.,
New York and Erie Railroad;	

and other principal Railroads in the Western, Middle and Southern States.

E. & F. FAIRBANKS & CO.
St. Johnsbury, Vt.
Agents { FAIRBANKS & Co., 81 Water st. N. York.
A. B. NORRIS, 196 Market st., Philad.
April 22, 1848. 1y*17

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

THE SUBSCRIBERS ARE PREPARED TO execute orders at their Phœnix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,
Philadelphia.
ROBERT NICHOLS, Agent,
26tf No. 79 Water St., New York.

CHILLED RAILROAD WHEELS.—THE undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St. below 13th,
Nov. 10, 1847. [tf.] Philadelphia, Penna.

THE SUBSCRIber has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc. ANDREW MENEELY.
West Troy, May 12, 1847. 1y*21

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent*

Spikes are kept for sale, at Factory Prices, by & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Jarviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand.

ja45

TO LOCOMOTIVE AND MARINE ENgine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

CHILLED RAILROAD WHEELS.—THE undersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money. A. TIERS.
Point Pleasant Foundry,

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.

Kensington, Philadelphia Co., }
March 12, 1848. } 11tf

NORWICH CAR FACTORY,
NORWICH, CONNECTICUT.

AT the head of navigation on the River *Thames*, and on the line of the *Norwich and Worcester Railroad*, established for the manufactory of

RAILROAD CARS,

OF EVERY DESCRIPTION, VIZ:

PASSENGER, FREIGHT AND HAND CARS,

ALSO, VARIOUS KINDS OF

ENGINE TENDERS AND SNOW PLOUGHS.

TRUCKS, WHEELS & AXLES

Furnished and fitted at short notice.

Orders executed with promptness and despatch.

☞ Any communication addressed to

JAMES D. MOWRY,
General Agent,
Norwich, Conn.,

Will meet with immediate attention. 1y8

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer*, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 92v1 1y

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

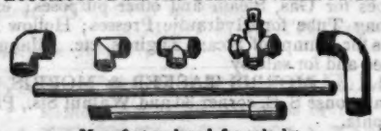
Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS,
ja45 *Reading, Pa.*

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



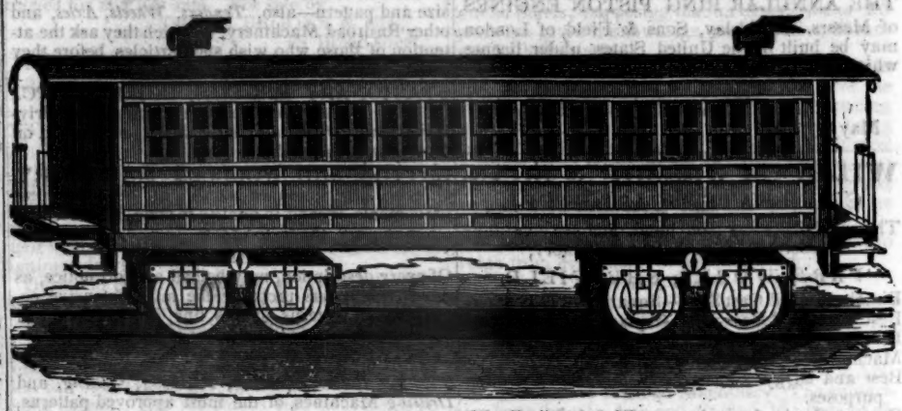
Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

LAWRENCE'S ROSENDALE HYDRAULIC CEMENT. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

DAVENPORT & BRIDGES'
CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10tf

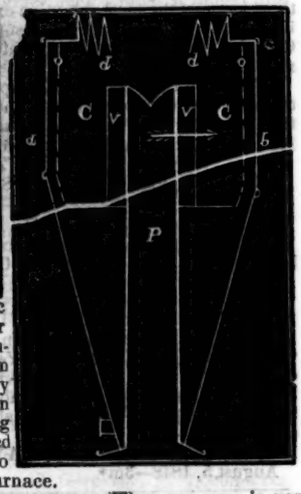
THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc. PETER COOPER,
1y10 17 Burling Slip, New York

RAILROAD IRON, PIG IRON, ETC.

600 Tons of T Rail 60 lbs. per yard.
25 Tons of 2½ by ½ Flat Bars.
25 Tons of 2½ by 9-16 Flat Bars.
100 Tons No. 1 Gartshrorie.
100 Tons Welsh Forge Pigs.
For Sale by A. & G. RALSTON & CO.
No. 4 So. Front St., *Philadelphia*

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.



Our improved Spark Arresters have been extensively used during the last year, on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

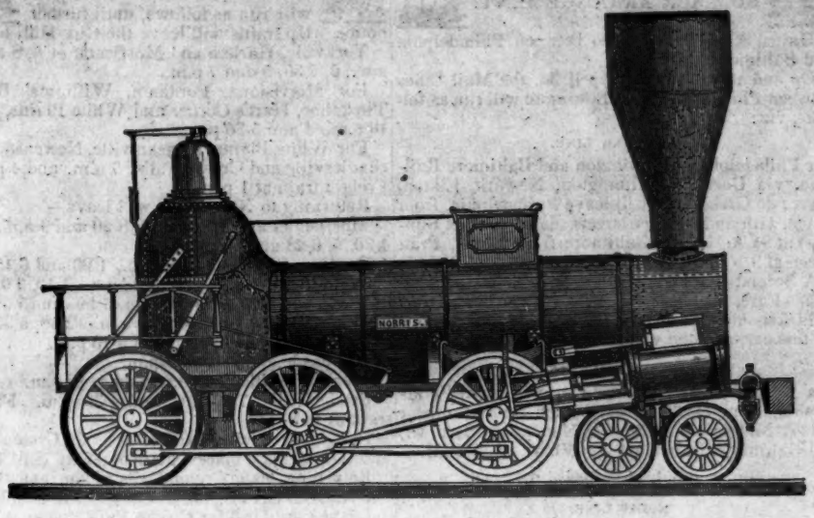
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city, will be promptly executed. FRENCH & BAIRD.

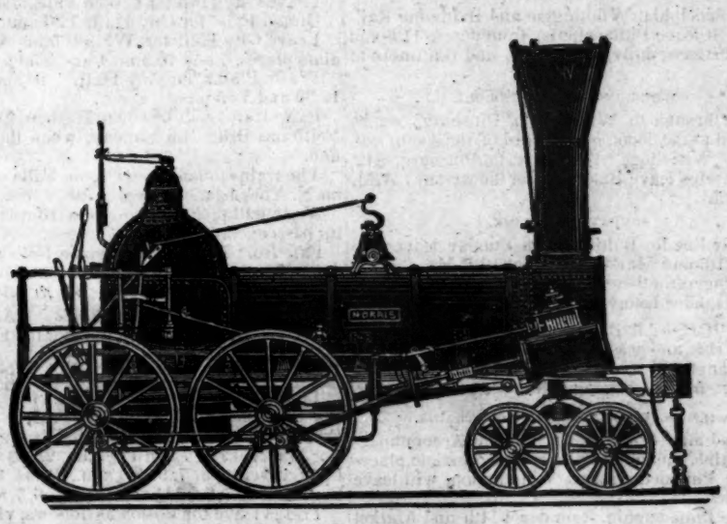
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *Philadelphia, Pa., April 6, 1844.*

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusunl advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality,

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS' BROTHERS.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Paterson, N. J., or 60 Wall street, N. York.

PIG AND BLOOM IRON.—THE SUBSCRIbers are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,
12tf Vine St. Wharf, Philadelphia.

T. & C. WASON, Manufacturers of every style of Freight and Baggage Cars.—Forty rods east of the depot, Springfield, Mass.

Running parts in sets complete, Wheels, Axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N.B. Particular attention paid to the manufacture of the *most improved* Freight Cars. We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Mass., Railroads, where our cars are now in constant use.

Dec.25, 1847.—1y.

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engagep in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent*,
1y Albany Iron and Nail Works,

IMPORTANT TO ENGINEERS, CONtractors, and Surveyors.—The Engineer's, Contractor's and Surveyor's Pocket Table Book, by J. M. Scribner, A. M., 264 pages, 24 mo; tuck binding, with gilt edge. Published by Huntington & Savage, 216 Pearl street, New York.

The above work comprises Logarithms of Numbers, Logarithmic Sines and Tangents, Natural Sines and Natural Tangents; the Traverse Table, and a full and extensive set of tables, *exhibiting at one view the number of cubic yards contained in any embankment or cutting, and for any base or slope of sides usual in practice.* Besides these essential tables, the work comprises 50 pages more of Mensuration, Tables, Weights of Iron, Strength of Materials, Formulas, Diagrams, etc., for laying out railroads, canals and curves; much of which has never before been offered to the public, and all dispensable to the engineer. This book will prove a great saving of time, and will enable the new beginner to furnish results as accurately (and with much greater rapidity) as the most experienced in the profession without its aid. The tables of Logarithms, etc., have been carefully corrected and compared with *different* editions of the same tables; and *all* the tables throughout the book have been read carefully by proofs four times; hence the most implicit confidence may be placed in their correctness.

Also, *Scribner's Engineer's and Mechanic's Companion*, new edition, 264 pages, enlarged, with 35 pages of entirely new matter, and much improved throughout.

It is believed these books are so well adapted to suit the above professions, that they cannot *afford* to do without them, and that they will aid in rewarding well directed mental labor.

Both are for sale by all the principal booksellers throughout the United States and Canada.

WESTERN RAILROAD.—ON AND AFter Monday, April 5, 1847, the passenger

trains will leave daily, Sun-

days excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.

Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany

Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveller, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p.m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p.m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a.m. and 7 p.m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.
C A. SEAD, Agent, 27 State street, Boston.

GEORGIA RAILROAD, FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class.	Boxes of Hats, Bonnets, and Furnature, per cubic foot.....	$0 18	$0 28
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
	Cotton, per 100 lbs.....	0 45	0 70
	Molasses, per hogshead.	8 50	13 50
	" " barrel....	2 50	4 25
	Salt per bushel.....	0 18	
	Salt per Liverpool sack..	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,
Sup't. of Transportation.

Augusta, Ga., July 15, 1847. 44*1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Rail road.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

Atlanta, Georgia, April 16th, 1846 1v1

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally...	50 cts. per hundred.
On measurement goods	13 cts. per cubic ft.
On brls. wet (except molasses and oil).....	$1 50 per barrel.
On brls. dry (except lime)...	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery.....	40 cts. per hundred
On hhds. and pipes of liquor, not over 120 gallons.....	$5 00 per hhd.
On molasses and oil.....	$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1848.

SUMMER ARRANGEMENT.

United States Mail Lines between Philadelphia and Baltimore. Fare, $3.

On and after Monday, April 3d, the Mail Lines between Philadelphia and Baltimore will run as follows, viz:

MORNING LINE.

Per Philadelphia, Wilmington and Baltimore Railroad, via Chester, Wilmington, Newark, Elkton, Havre de Grace, etc., will leave Philadelphia, from Depot, 11th and Market streets, daily (except Sunday) at 8½ A.M., and Baltimore from Depot, Pratt street, at 9 o'clock, A.M.

A Second Class Car will be run with the morning line. Fare, $2.

Tickets must positively be procured at the Office for this car, as none will be sold by the conductors.

AFTERNOON LINE.

Via Newcastle and Frenchtown, will leave Philadelphia, from Dock Street Wharf, per Steamboat Robert Morris, daily (except Sunday) at 2½ P.M., and Baltimore, from Bowly's Wharf, at 2½ P.M.—

☞ Supper provided on board the boat. ☜

NIGHT LINE.

Per Philadelphia, Wilmington and Baltimore Railroad, will leave Philadelphia, from depot, 11th and Market streets, daily, at 11 P.M., and Baltimore at 8 P.M.

WHEELING AND PITTSBURG.

Tickets through to Wheeling or Pittsburg, can be procured at the depot, or on board of the steamboat. Fare to Wheeling, $13. Fare to Pittsburg, $12.

The trains leave Baltimore for the west at 7 A.M. and 4 P.M.

SUNDAY MAIL LINE.

The only line for Baltimore on Sunday leaves the depot, 11th and Market streets, at 10 P.M.

Passengers for these lines must procure their Tickets at the office before taking their seats in the cars.

NOTICE.—All Baggage by these lines is at its owner's risk, and passengers are expressly prohibited taking anything as baggage, except their wearing apparel. 50 lbs. baggage allowed each passenger.

WILMINGTON ACCOMMODATION TRAINS.

On and after Monday, April 3d, the Accommodation Trains, stopping at all the intermndiate places between Philadelphia and Wilmington, will leave as follows, viz:

Leave Philadelphia, from depot 11th and Market streets, daily (Sundays excepted) at 1½ and 4 P. M.

Leave Wilmington, from the depot, Water street, daily (except Sunday) at 7½ A.M. and 4½ P.M.

The Freight Accommodation Train will leave Philadelphia at 7 P.M. and Wilmington at 7 P.M.

The Mail Trains stopping at Chester and Wilminton, leave Philadelphia at 8½ A.M. and 10 P.M. Wilmington at 1 o'clock, P.M., and 12 midnight.

Fare to Wilmington, 50 cts. Fare to Chester, 25 cts.

G. H. HUDDELL, *Agent.*

March 23, 1848. 1y15

BOSTON AND PROVIDENCE RAILroad. On and after Monday, October 2d, the

Trains will run as follows:

Steamboat Train—Leaves Boston at 5 p.m.—Leaves Providence, on the arrival of the train from Stonington.

Accommodation Trains—Leave Boston at 8 a.m. and 3½ p.m. Leave Providence at 8½ a.m. and 3½ p.m.

Dedham Trains—Leave Boston at 9 a.m., 12 m., 3, 6, and 10½ p.m. Leave Dedham at 7½ 10½ a.m., 1½, 4½, and 9 p.m.

Stoughton Trains—Leave Boston at 11½ a.m. and 4½ p.m. Leave Stoughton at 8½ a.m. and 2½ p.m.

Freight Trains—Leave Boston at 11 a.m. and 6 p.m. Leave Providence at 4 a.m, and 7 40 a.m.

On and after Wednesday, Nov. 1, the DEDHAM TRAIN will run as follows: Leave Boston at 9 a.m., 12 m., 3, 5½ and 10½ p.m. Leave Dedham at 8 10½, a.m., 1½, 4½ and 9 p.m.

WM. RAYMOND LEE, *Sup't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.—On and after

Tuesday, June 1st, 1847, the cars will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m. Freight train at 1 p.m.

Returning to New York, will leave—

Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows:

Leave City Hall for Croton Falls, 7 a.m, 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will preceed each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers $1, to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c. to White Plains 50c. 25tf

BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

Summer Arrangement.

Commencing July 3d, 1848.

Trains leave Boston as follows, viz:

For Portland at 7 A.M. and 2½ P.M.

For Great Falls at 7 a.m., 2½ and 4½ p.m.

For Haverhill at 7 and 11½ a.m., 2½, 4½ and 6 p.m.

For Lawrence, at 7, 9, 11½ a.m., 2½, 4½, 6, 7 p.m.

For Reading 7, 9 & 11½ a.m., 2½, 4½, 6, 7, 8½ & 10 p.m

Trains leave for Boston as follows, viz:

From Portland at 7½ a.m., and 3 p.m.

From Great Falls at 6½ and 9½ a.m., and 4½ p.m.

From Haverhill at 7, 8½ and 11 a.m., 3½ and 6½ p.m.

Lawrence at 6½, 7½, 8½, 11½ a.m., 12½, 3½, 6½, p.m.

Reading at 6, 6½, 7½, 9½, 11½ a.m., 1, 4, 7½, 9, 10 p.m.

MEDFORD BRANCH TRAINS.

From Boston at 6·50, 9½ a.m., 12½ 2½, 5½, 7, 10 p.m.

From Medford at 6·10, 7½, 10½, a.m., 2, 4, 6½, 9½ p.m.

STEAMBOAT TRAINS.

For BANGOR, every Monday, Wednesday and Friday, at 5 p.m.

For HALLOWELL, every Tuesday, Thursday & Saturday, at 7 a.m.

The Depot in Boston is on Haymarket Square.

CHAS. MINOT, *Sup't.*

Boston, July 3d, 1848.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for

1848.

A Passenger Train will leave

Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	$3·50 and	$3·00
" " Reading,	58	2·25 and	1·90
" Pottsville "	34	1·40 and	1·20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at	9 a.m.	and 3½ p.m.
Arrives at	9 a.m.	and 6½ p.m.
Leaves York at	5 a.m.	and 3 p.m.
Arrives at	12½ p.m.	and 8 p.m.
Leaves York for Columbia at	1½ p.m.	and 8 a.m.
Leaves Columbia for York at	8 a.m.	and 2 p.m.

FARE.

Fare to York	$1 50
" Wrightsville	2 00
" Columbia	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg	$9
Or via Lancaster by railroad	10
Through tickets to Harrisburg or Gettysburg	3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5½ p.m.
Returning, leaves Owing's Mills at 7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 a/ night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

NORWICH AND WORCESTER RAILROAD. Summer Arrangement.—1848.

Accommodation Trains daily, (Sundays excepted.)

Leave Norwich, at 6 a. m., 12 m. and 5 p. m.
Leave Worcester, at 6½ and 10 a. m., and 4½ p. m. connecting with the trains of the Boston and Worcester and Providence and Worcester railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston, daily, Sundays excepted, at 5 p.m.—At New York from pier No. 1 N. River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6½ a. m., from Norwich at 7 a.m.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y S. H. P. LEE, Jr., Sup't.

RAILROAD IRON—2500 TONS HEAVY H Rail, now landing, and expected shortly to arrive, for sale on most favorable terms by

DAVIS BROOKS & CO.
July 19th, tf 68 Broad street, New York.

RAILROAD LINE BETWEEN ALBANY AND BUFFALO, N. Y.

1848.—SCHEDULE FOR RUNNING.—1848.

Going west.		1st train.	2d train.	3d train
Leaves	Albany	7½ A.M.	2 P.M.	7 P.M.
Pass	Utica	1 P.M.	7½ P.M.	1½ A.M.
Pass	Syracuse	4½ P.M.	11 P.M.	5 A.M.
Pass	Auburn	6½ P.M.	1 A.M.	7 A.M.
Pass	Rochester	12½ M.N.	7 A.M.	1 P.M.
Arrives at	Buffalo	5½ A.M.	12 M.	6 P.M.
Going east.		**1st train.**	**2d train.**	**3d train.**
Leaves	Buffalo	7½ A.M.	2 P.M.	7 P.M.
Pass	Rochester	12½ M.	7 P.M.	12 M.N.
Pass	Auburn	6½ P.M.	1 A.M.	6 A.M.
Pass	Syracuse	8½ P.M.	3½ A.M.	8 A.M.
Pass	Utica	12 M.N.	7 A.M.	11½ A.M.
Arrives at	Albany	5 A.M.	12 M.	4½ P.M.

Adopted February 18, 1848, in convention at Albany. (Copy.)

T. Y. HOWE, Jr.,
Secretary of the Convention.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily	$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia	22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

r25 JOHN KING, Jr, *Agent.*

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlantic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100 lbs.	35
Crockery, per cubic foot	0 15 " "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price,
Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

NEW YORK ANDERIE RAILROAD LINE. SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M, by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, $1 50; way-fare in proportion.

FOR MILK—Leave Otisville at 5½ o'clock, morning and evening.

FOR FREIGHT—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains eaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For further particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf H. C. SEYMOUR, Sup't.

LITTLE MIAMI RAILROAD COMPANY. Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad 84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road	32 "
From Bellefontaine to Sandusky city by railroad	102 "
FARE—From Cincinnati to Lebanon	$1 00
" " " Xenia	1 50
" " " Springfield	2 00
" " " Columbus	4 00
" " " Sundusky city	7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

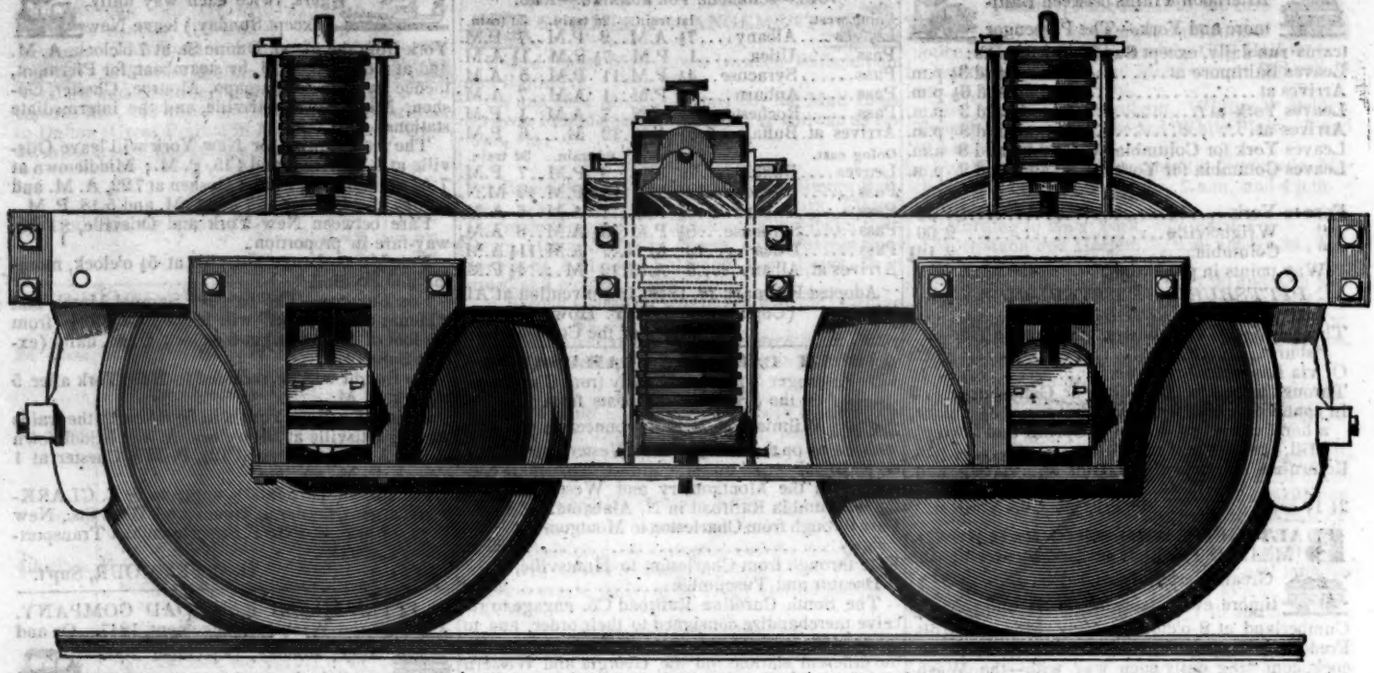
Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

47tf W. H. CLEMENT, *Sup't.*

VULCANIZED INDIA RUBBER CAR SPRINGS.



THE NEW ENGLAND CAR COMPANY have introduced these Springs, and they are now in operation on every Railroad terminating in Boston, and several others in New England and the Middle States. Their qualities are well understood, or may be readily ascertained by every person interested to know them. They require no recommendation from the Company. The only known compound of India Rubber good for anything for this purpose is the Vulcanized India Ruhber, invented by Charles Goodyear, of New Haven, and the application of it, and the form in which it is used, were invented by F. M. Ray, of New York. The right to manufacture and sell the substance itself for the purpose of Railroad Carriage Springs, as well as the form and application of it, are held exclusively by the New England Car Company. No other company, or individual, has any right to sell or use it for such purpose, or has attempted so to use it in this country.

The New England Car Company guarantee the right to use the article they sell for Railroad Carriage Springs only, against all adverse rights, whether under patents or otherwise: and all persons and corporations are cautioned against a similar use of the article, when purchased of any other parties.

The Springs they sell are all manufactured in a uniform manner, and under the immediate inspection of their own Agent, and have been proved and known to answer the purpose. None have been manufactured in this country or imported from abroad beside their own, which would at all answer the purpose; and if any such should be produced, it cannot be used for Car Springs, while Goodyear's patents, and the rights of the New England Car Company under them, remain in force.

The New England Car Company are now prepared to answer orders for all that may be called for, on reasonable notice, and uniform and equitable terms. They invite the most careful examination, and the severest scrutiny, into the merits of their Springs, wherever they have applied them. And if after such examination, your Company should judge it for their interest to adopt them, the N. E. Car Company would respectfully invite the patronage which they think they deserve, and are confident of receiving at your hands.

EDWARD CRANE, *Agent*,
Office 99 State street.

Orders may also be left with WM. RIDER & BROTHERS, No. 58 Liberty street, New Yerk, or with F. M. RAY, *Agent*,
100 Broadway, N. Y.

The following article, from the pen of Mr HALE, the president of the Boston and Worcester railroad, expresses his opinion of this important improvement, as published in the Boston Daily Advertiser of June 7, 1848. He says:

"Of the numerous uses to which the wonderful elasticity and durability of India Rubber renders this material applicable, we are hardly aware of one in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used, not only for the springs on which the car rests, but for the springs attached to the draw bar at each end of the car, to prevent any jar on the sudden advancement or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn, that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think, than any other spring which we have ever seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months, in which we have seen the springs in operation, there is no apparent wear or diminution of their efficiency."

The above statement of Mr. Hale agrees with my own observation in all particulars.

WM. PARKER, Supt. B. & W. R. R.
June 8, 1848.

I fully concur in the foregoing statement, from practical observation of its use for the last 5 months, on the Boston and Worcester railroad corporation cars.

D. N. PICKERING, Jr.,
Supt. Car Building B. &. W. R. R.
Boston, June 10, 1848.

The New England Car-Company have introduced their Vulcanized India Rubber Car Springs on the roads with which we are respectively connected, and we fully concur with Mr. Hale in the above opinion of their character and properties.

DAVENPORT & BRIDGES, Car Builders.
BRADLEY & RICE, Car Builders.
Boston, June, 1848.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1¼ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,
12 Platt street, New York.
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28tf

AMERICAN RAILROAD JOURNAL.
OFFICE AT 48 SOUTH THIRD STREET,
(Below Chestnut Street,)
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, *in advance*.

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One page per annum	$125 00
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One page per month	20 00
One column "	8 00
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One page, single insertion	8 00
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One square " "	1 00
Professional notices per annum	5

☞ LETTERS and COMMUNICATIONS for this Journal may be directed to the *Editor*,
D. K. MINOR.